

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number
WO 2004/082867 A3

(51) International Patent Classification⁷: **B22D 41/005**,
41/01, 11/06, 11/117, 11/119, F27D 23/00, F27B 14/06,
H05B 3/62

(21) International Application Number:
PCT/GB2004/001164

(22) International Filing Date: 18 March 2004 (18.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0306526.5 21 March 2003 (21.03.2003) GB

(71) Applicant (for all designated States except US): **PY-ROTEK ENGINEERING MATERIALS LIMITED**
[GB/GB]; Garamonde Drive, Wymbush, Milton Keynes
MK8 8LN (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **VINCENT, Mark**
[GB/GB]; 19 Hydrus Drive, Leighton Buzzard LU7 8UL
(GB).

(74) Agent: **RAYNOR, Simon, Mark**; Urquhart-Dykes &
Lord LLP, Midsummer House, Midsummer Boulevard,
Central Milton Keynes MK9 3BN (GB).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

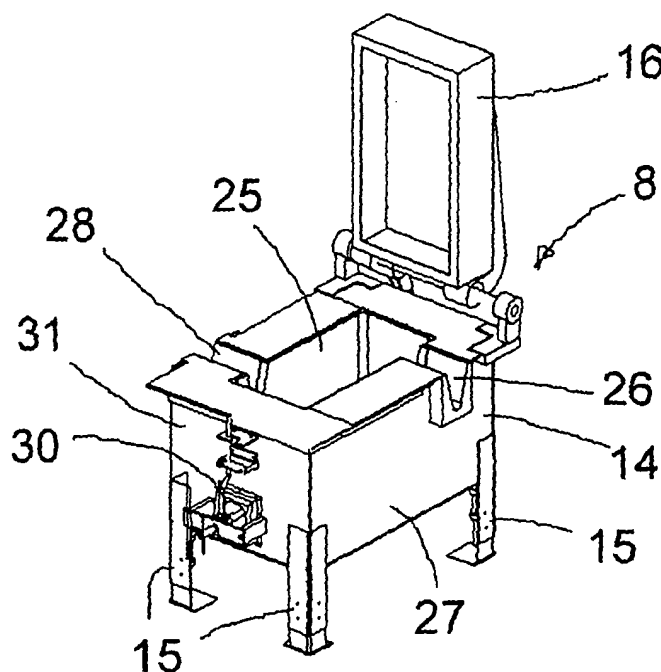
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: CONTINUOUS CASTING INSTALLATION & PROCESS



(57) Abstract: A continuous casting installation includes a furnace (2) for heating metal to a first liquid metal temperature, a degassing unit (4), a filter (6), a heating unit (8) and a casting machine (10). The casting machine (10) includes a pair of casting rollers and a nozzle arranged to deliver liquid metal into a nip between the casting rollers, such that the metal solidifies as it passes through the nip. The heating unit (8) is located between the furnace and the casting machine, and is thermostatically controlled to heat the liquid metal to a second liquid metal temperature.

WO 2004/082867 A3



(88) Date of publication of the international search report:
11 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB2004/001164

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B22D41/005 B22D41/01 B22D11/06 B22D11/117 B22D11/119
 F27D23/00 F27B14/06 H05B3/62

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B22D F27D F27B H05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97/16051 A (ELKEM MATERIALS ; SKREIEN NILS (NO)) 1 May 1997 (1997-05-01) cited in the application figures	1, 17, 25
A	DE 197 52 548 A (SCHLOEMANN SIEMAG AG) 10 June 1999 (1999-06-10) cited in the application abstract	1, 17, 25

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the International filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the International filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the International search

23 August 2004

Date of mailing of the international search report

13/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Hodiamont, S

INTERNATIONAL SEARCH REPORT

ation on patent family members

International Application No

PCT/GB2004/001164

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9716051	A	01-05-1997	NO 954252 A	28-04-1997
			AU 7509196 A	15-05-1997
			WO 9716051 A1	01-05-1997
			ZA 9608283 A	02-04-1998
DE 19752548	A	10-06-1999	DE 19752548 A1	10-06-1999